

**EU Cap and Trade Programme**  
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In 2001 the European Commission adopted a proposal to introduce emissions trading in Europe. This proposal was then negotiated, and the Emissions Trading Directive was approved by the European Council and the European Parliament in 2003 for transposition in National legislation in Member States and implementation across Europe by January 2005.

The first phase of the programme (2005-2007) was intended as a learning phase prior to the first Kyoto commitment period (2008-2012).

The EU ETS is one of the key policies introduced by the European Union to help meet the EU's greenhouse gas emissions reduction target under the Kyoto Protocol. The EU is required to make an 8 per cent reduction in emissions compared to 1990 levels by the first Kyoto Protocol commitment period (2008 to 2012).

The programme is entirely different and separate from the voluntary pilot UK ETS, which involves only UK-based companies and ended in December 2006 for direct participants.

The EU ETS uses a market-based mechanism to incentivise the reduction of greenhouse gas emissions. The programme operates through the allocation and trade of greenhouse gas emissions allowances throughout the EU – one allowance represents one metric tonne of carbon dioxide equivalent.

An overall limit, or 'cap', is set by each Member State on the total number of allowances to issue to installations in the programme, based on the Member States' emission reduction targets (Kyoto and/or national). The caps are assessed by the Commission to ensure their compliance with the 12 criteria of the Emissions Trading Directive.

The allowances are then distributed by Member States to the installations in the programme. At the end of each year installations are required to ensure they have enough allowances to account for their installation's actual emissions.

They have the flexibility to buy additional allowances (on top of their free allocation), or to sell any surplus allowances generated from reducing their emissions below their allocation. The buying and selling of allowances takes place in an EU-wide market.

The programme is divided into periods (phases) for which Member States must develop a **National Allocation Plan (NAP)**, which requires Commission approval. These plans must set out how free allowances will be issued to installations included in the programme, and for Phase II they must show that the total number of allowances to be issued is consistent with Member States'

individual emission reduction targets under the EU's burden sharing agreement for the Kyoto Protocol.

There are around 12,000 installations in Europe covered by the EU ETS which are responsible for almost 50% of Europe's CO<sub>2</sub> emissions.

Installations covered by the programme include:

- energy activities (e.g. boilers, electricity generations, Combined Heat and Power plants);
- production and processing of ferrous metals;
- mineral industries;
- pulp and paper industries.

All installations carrying out any activity listed in Schedule 1 (such as combustion installations, production and process of ferrous metals) are required to hold a greenhouse gas emissions permit. The conditions of the permit will require installations to monitor and report emissions in accordance with the monitoring and reporting plan approved by the Regulator. Each year emissions data for the previous calendar year must be verified, and the equivalent number of allowances surrendered. All transfers and surrenders of allowances take place on electronic national registries.

Phase I of the programme runs from 1 January 2005 to 31 December 2007 and was designed as a learning phase, with a review process, in order to get the programme up and running and to learn early lessons in time for operation of the first Kyoto period from 2008 -2012 when Member States and the European Union would have obligations to meet their Kyoto targets. The Commission is currently reviewing the scheme, and expect to bring forward an amendment to the Directive by the end of 2007.

Carbon dioxide is the only greenhouse gas covered by the EU ETS in Phase I. Other greenhouse gases or activities can be covered from Phase II (2008 to 2012) if Member States choose to opt-in additional gases or activities, or if the EU ETS Directive was to be amended for future phases.

### **How were allowances calculated in Phase I?**

For Phase I Member States were required to allocate at least 95% of allowances for free. The Directive also required that allocation could not be made in excess of need, ie emitters could not be given more allowances than would be needed to cover their expected emissions with the expected levels of growth (i.e. not more than Business As Usual). This recognised the 'sunk costs' of business covered by the programme, who had made investments in a world without EU ETS and without a carbon price.

The UK allocated 93.7% of the total quantity of allowances to existing UK installations, which were to be issued in three equal annual instalments for free. The remaining 6.3% forms a new entrant reserve (see below). If there are any allowances remaining in the new entrant reserve in Phase I, these will be auctioned or sold. For installations which were in operation before 1 January 2004, the allocation of allowances followed a two-stage process.

Firstly, the total quantity of allowances was distributed among sectors covered by the EU ETS – e.g. power stations, iron and steel, cement etc. The sector totals were intended to reflect the projected production growth over the phase. The allowances within sectors were then distributed to installations proportionate to their share of baseline emissions. Baselines for Phase I were calculated on the average emissions for 1998 – 2003, dropping the lowest year.

### **Experience of Phase I to date**

In the first Phase the Commission cut back the proposed allocations by 220 million per year. Given the very tight timetable for developing National Allocation Plans and the institutions required to run the programme, not all plans were approved, nor emissions trading registries live on 1<sup>st</sup> January 2005. In fact the UK plan was finally approved and the emissions trading registry went live in May of that year. Many plans were approved and allocations made throughout the remainder of 2005 and into 2006. This stream of approval and allocation in the first year caused shocks to the fledgling market as decisions were made on total allocations and allowances became available to trade.

In May 2006 the results of the first years trading were made available. These results demonstrated that allocations were, overall, in excess of emissions – by around 80 million allowances for that year, against predictions of a annual shortage of around 50 million. In fact the percentage of excess allowances is small - about 4%, since the total market is about 2,000 million. However against this there was a very high degree of compliance (more than 99%).

The first two years of trading have been characterised by a good deal of volatility in the price with the cost of allowances rising to over €30 a tonne in June and July 2005 and then again in April 2006, dropping sharply to around €8 following the release of the first year's results. As noted above the volatility was, in large part, generated by the stream of approvals and availability of allowances as registries came online.

According to Point Carbon, 2006, the second year of Phase 1, “ global carbon markets saw transactions of 1.6 billion tonnes of CO<sub>2</sub>e, worth €22.5 billion. The EU's emissions trading scheme (EU ETS) accounted for 62% of the volume and 80% of the value in 2006, which equates to 1 billion tonnes of CO<sub>2</sub> transacted, worth €18.1 billion.” Point Carbon estimates that this was 2.5 times high than in 2005.. They predict the international carbon markets will grow to 2.4 billion tonnes of CO<sub>2</sub>e and that the EU ETS trades will be worth in the region of €18.5 billion in 2007.

The first year's results made clear that good baseline data was necessary to set allocations and this early learning phase ensured that states and the European Commission have reliable data on which to base the allocations for the first Kyoto period. The learning phase also ensured that the institutional framework was put in place. This required the development of national and

community emissions trading registries. Each installation in the programme has an account in its national registry. The account tracks the allocation and holding of allowances and sufficient allowances must be held in the account to cover the verified emissions of an installation. The accounts also allow the electronic transfer of allowances from any installation in the programme to any other, with a series of checks and balances to ensure the security of the system. Individuals or other companies may also open accounts in the registries in order to hold, trade or cancel allowances.

### **Factors influencing the cost of carbon**

In addition to the allocation decisions of Member States there are many influences on the cost of carbon including the relative cost of gas, coal and oil, weather, economic growth, improvements in energy intensity, the price and limit on the use of credits from the Clean Development Mechanism, or Joint Implementation.

### **Costs to industry and domestic users**

Many states, including the UK, allocated allowances in order to require the large electricity producers to bear the burden of any 'effort'. This recognised that this sector was reasonably well insulated from international competition, that in general there was better emissions data available, and that where the electricity markets were competitive, they were able to pass on costs. In implementing the programme in the very short space of time, it was difficult to get a good assessment of the competitive impacts of allocating at less than need for many other sectors. Further, any price impact on electricity would provide an incentive for other energy intensive industries to reduce their energy use. Other sectors in the UK were allocated at predicted need. This reflected the difficulty within a short period of time of undertaking a full competition assessment and the extent to which these sectors could pass through costs.

### **Electricity Prices**

The electricity price increase from internalising the cost of carbon in the UK was assessed as being much smaller than the increase due to the increased price of gas during the period. In fact the high cost of gas meant that fuel switching did not take place in that year.

Analysis undertaken in the UK indicated that the electricity sector had largely passed through costs to wholesale electricity prices, and hence large industrial users, in the first year, but that there was evidence that costs have not yet been fully passed through to domestic users.

### **Competition Issues**

Some industries covered by the ETS are clearly more open to international competition than others. However, there are a number of factors, alongside

the cost of carbon, that will influence investment decisions by industry including long term regulatory certainty, the availability of a skilled labour force, and the proximity of markets. Tata Steel recently announced its acquisition of Corus the UK's largest steel company, showing that multinationals are still willing to invest in this competitive industry within the EU. From an energy perspective, the Kingsnorth plant – 1.6 gigawatts of clean coal which is 'capture ready' was announced in October last year, showing that companies are willing to build new coal fired power plants in the UK.

### **Has there been an environmental response from industry?**

Anecdotal evidence from industry shows that the consideration of a carbon price has led to them making some of the easier energy efficiency measures, but also that they are starting to invest in R&D for new technologies. Industry have called for long term clarity over future carbon constraints, so they can make the right low carbon investments.

In their study of the ETS published in November 2006 Denny Ellerman and Barbara Buchner found "the refutable presumption must be that the EU ETS succeeded in abating CO2 emissions in 2005 based on three observations.

1. **A Positive EUA Price.** A significant price is being paid for CO2, which reason suggests would have the effect of reducing emissions as firms adjust to this new economic reality.
2. **Rising Real Output.** Real output in the EU has been rising at the same time that the rate of improvement in CO2 intensity has been declining, which has led to rising CO2 emissions before 2005.
3. **Historical Emissions Data** that indicate a reduction of emissions even after allowing for plausible bias. The amount of emission reduction in 2005 may be modest, but so is the ambition of the 1st period cap. Given the problems of getting the system started and the changes in management and regulatory practice implied, even a modest amount of abatement may seem surprising, but the available evidence makes it hard to argue that there was none."<sup>1</sup>

### **Second Phase – 2008 -2012**

The Second Phase of the EU ETS runs from 2008 – 2012, coinciding with the first Kyoto Commitment Period where the EU has a commitment to reduce greenhouse gas emissions by 8% below 1990 levels. Within this bubble agreement States have individual commitments – for example the UK has a target to reduce its emissions to 12.5% below 1990 levels.

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<sup>1</sup> **Over-Allocation or Abatement? A Preliminary Analysis of the Eu Ets Based on the 2005 Emissions Data**  
Denny Ellerman and Barbara Buchner *NOTA DI LAVORO 139.2006 NOVEMBER 2006 CCMP – Climate Change Modelling and Policy* Denny Ellerman, *Massachusetts Institute of Technology, Senior Lecturer at Sloan School of Management*  
Barbara Buchner, *Fondazione Eni Enrico Mattei*

In assessing Member States plans for the second phase, the European Commission has therefore looked at their progress towards the Kyoto target, the other policies and measures in place to help meet this target and importantly, the verified emissions data for 2005. A starting point for assessment is the proportion that ETS installations 2005 emissions contribute to a state's total greenhouse gas emissions, and its distance to its Kyoto target.

The first year's compliance results have provided Member States and the Commission with much more robust emissions data than was available in Phase I. The plans assessed by the Commission so far demonstrate its commitment to using that data to ensuring real scarcity in the programme in Phase 2. Table 1 shows the adjustments made by the European Commission to the 17 proposed plans assessed to date, cutting approximately 101 tonnes from 2005 verified emissions once increased scope is accounted for.

**Table 1: Assessment of Phase 2 National Allocation Plans**

**Summary information on the 17 plans assessed to date:**

Approved allowances for 2005-2007, verified emissions in 2005, proposed caps for 2008-2012, approved caps for 2008-2012 and additional emissions covered in 2008 to 2012

<b>Member State</b>	<b>1<sup>st</sup> period cap</b>	<b>2005 verified emissions</b>	<b>Proposed cap 2008-2012</b>	<b>Cap allowed 2008-2012</b>	<b>Additional emissions in 2008-2012<sup>[2]</sup></b>
<b>Belgium</b>	62.08	55.58 <sup>[3]</sup>	63.33	58.5	5.0
<b>Czech Rep.</b>	97.6	82.5	101.9	86.8	n.a.
<b>France</b>	156.5	131.3	132.8	132.8	5.1
<b>Germany</b>	499	474	482	453.1	11.0
<b>Greece</b>	74.4	71.3	75.5	69.1	n.a.
<b>Ireland</b>	22.3	22.4	22.6	21.15	n.a.
<b>Latvia</b>	4.6	2.9	7.7	3.3	n.a.
<b>Lithuania</b>	12.3	6.6	16.6	8.8	0.05
<b>Luxembourg</b>	3.4	2.6	3.95	2.7	n.a.
<b>Malta</b>	2.9	1.98	2.96	2.1	n.a.
<b>Netherlands</b>	95.3	80.35	90.4	85.8	4.0
<b>Poland</b>	239.1	203.1	284.6	208.5	6.3
<b>Slovakia</b>	30.5	25.2	41.3	30.9	1.7
<b>Slovenia</b>	8.8	8.7	8.3	8.3	n.a.
<b>Spain</b>	174.4	182.9	152.7	152.3	6.7 <sup>[4]</sup>
<b>Sweden</b>	22.9	19.3	25.2	22.8	2.0
<b>UK</b>	245.3	242.4 <sup>[5]</sup>	246.2	246.2	9.5

<b>SUM</b>	<b>1751.38</b>	<b>1613.11<sup>[6]</sup></b>	<b>1758.04</b>	<b>1593.15</b>	<b>51.35</b>
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<sup>[1]</sup> Directive 2003/87/EC, as amended by Directive 2004/101/EC. <sup>[2]</sup> The figures indicated in this column comprise emissions in installations that come under the coverage of the scheme in 2008 to 2012 due to an extended scope applied by the Member State and do not include new installations entering the scheme in sectors already covered in the first trading period.

<sup>[3]</sup> Including installations which Belgium opted to exclude temporarily from the scheme in 2005

<sup>[4]</sup> Additional installations and emissions of over 6 million tonnes are already included as of 2006.

<sup>[5]</sup> Verified emissions for 2005 do not include installations which the UK opted to exclude temporarily from the scheme in 2005 but which will be covered in 2008 to 2012 and are estimated to amount to some 30 Mt.

<sup>[6]</sup> The sum of verified emissions for 2005 does not include installations which the UK opted to exclude temporarily from the scheme in 2005 but which will be covered in 2008 to 2012 and are estimated to amount to some 30 Mt.

There are some differences to the programme for Phase 2 that were written into the Directive. These are that Member States may auction or sell up to 10% of allowances, and that they must set a limit on the use of project credits generated by developing country projects in the Clean Development Mechanism and Joint Implementation. consistent with the international obligations on supplementarity (that require states to ensure that any effort that is purchased from developing countries through the Kyoto Mechanisms is additional to domestic action to reduce emissions). There has been no change to the Directive for Phase 2 but there has been greater harmonisation of the scope and interpretation of the Directive facilitated by additional guidance from the Commission.

There is no sunset clause in the Directive, therefore the scheme will continue to run. However, during 2007 the Commission, in consultation with Member States and stakeholders, is reviewing the Directive. The Commission are expected to bring forward a proposal to amend the Directive later this year, which would become effective from 2013 (Phase III).

This is intended to strengthen the scheme by analysing its functioning and design with respect to a number of specific issues, evaluating the impact of expanding the EU ETS to other sectors and gases, and understanding the impact of the EU ETS on competitiveness.

The key issues that are under consideration are:

- 1 The scope of the Directive – including the consideration of inclusion of other sectors and gases
- 2 Further harmonisation and increased predictability that will address the issue of cap setting, and whether this should be centralised, and the length of trading periods and target setting
- 3 Robust compliance and enforcement

4      Linking with emissions trading programmes in third countries, and appropriate means to involve developing countries and countries in economic transition

The UK will push hard for greater clarity on certain issues, such as caps, for implementation of the EU ETS beyond 2012, as the EU ETS is considered the most important mechanism for stimulating UK and international investment in low-carbon technology.

At the launch of the Stern Review the Chancellor of the Exchequer announced the UK's proposal for a new European-wide emissions reduction target of 30% by 2020 and then at least 60% by 2050.

At the Spring European Council on 9 March 2007, EU Heads of Government agreed an ambitious, independent binding target to reduce Europe's greenhouse gas emissions by at least 20% by 2020 (compared to 1990 levels) and to increase this commitment to a 30% reduction as part of an international agreement. They also decided to:

- ensure that a minimum of 10% of EU transport petrol and diesel consumption comes from bio-fuels by 2020;
- promote energy efficiency by reducing overall EU energy consumption by 20% by 2020;

and stimulate the use of new technology on clean coal power stations, with the aim of bringing environmentally safe carbon capture and storage (CCS) to deployment with new fossil-fuel power plants, if possible by 2020.